

# VLBI2010 Network Operation Control

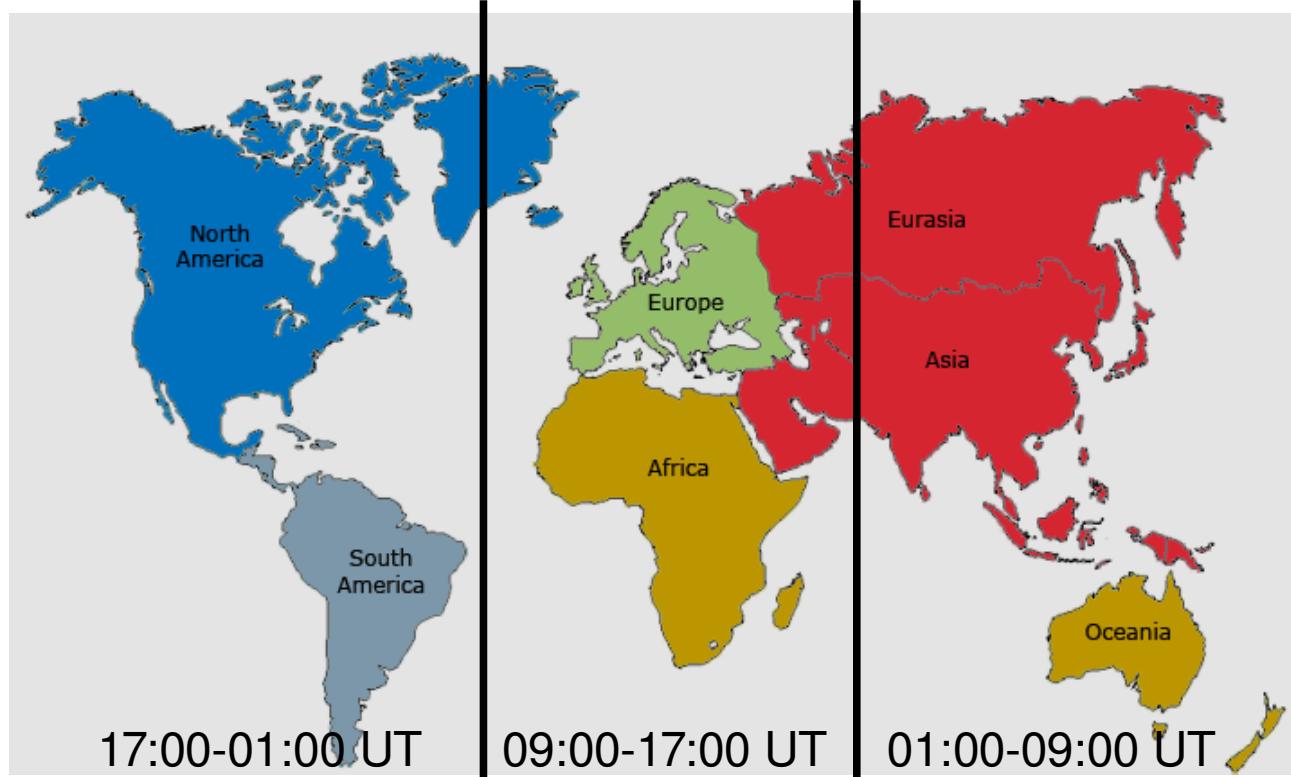
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VLBI2010 is aiming for 24hour/7days operations at network stations in order to improve it's service products (IVS-WG2). This is a request which at least doubles the working load at the most scheduled network station in the IVS-network. The institutions having a committment to the IVS network operation are in the majority not capable to increase their operational staff significantly in order to keep up with a 24h/7d use.

The goal of 24h/7d operations can be achieved, when the individual decentralized station operation can be transformed into a shared centralized global network control operation. Future VLBI operations can be achieved by giving to one station in a daylight zone the control over the observing VLBI-network of up to 12 or even more stations by using the communication infrastructure. The operator will have  $n$  radiotelescopes and  $n$  data acquisition systems for one shift of 8 hours (maybe 2 times 4h) under his control. The operation might cycle around the world, beginning in Asia/Australia/New Zealand, continuing at one station in Europe/Africa and finishing the observation day by control from North/South America.

The operators at stations being remotely controlled are not superfluous, because for emergencies they will have to be in a stand-by mode, if an emergency call from the network control reaches the station. Within a 7day week each station will contribute only a few network control shifts per week which will require full concentration by the operator and many relaxed stand-by shifts in case of emergencies.



*Distribution of network operation control shifts with respect to daylight zones. Only one shift in 24h has to be carried out at one station, if all network stations participate in the remote network control scheme.*

This scheme requires a new VLBI2010 remote control software. This software can be developed

- either top of the current NASA PC Field System for VLBI,
- or be integrated in a new from scratch developed IVS VLBI2010 Field System with modern client-server architectures addressing network security issues on its core level and enabling a secure and safe operation.

The development of the remote network control software will be beneficial for eVLBI. When centralized correlators will be used for eVLBI session, it is desirable to control the observing network directly from the correlator.

If a distributed correlation using grid architectures will be used in the future, then the control of the correlation process may be integrated to the observation network control which is going around the globe with the daylight zones.

In both cases a software development of the network control of VLBI stations is necessary.